A Snapshot of Breast Cancer

Incidence and Mortality Rate Trends

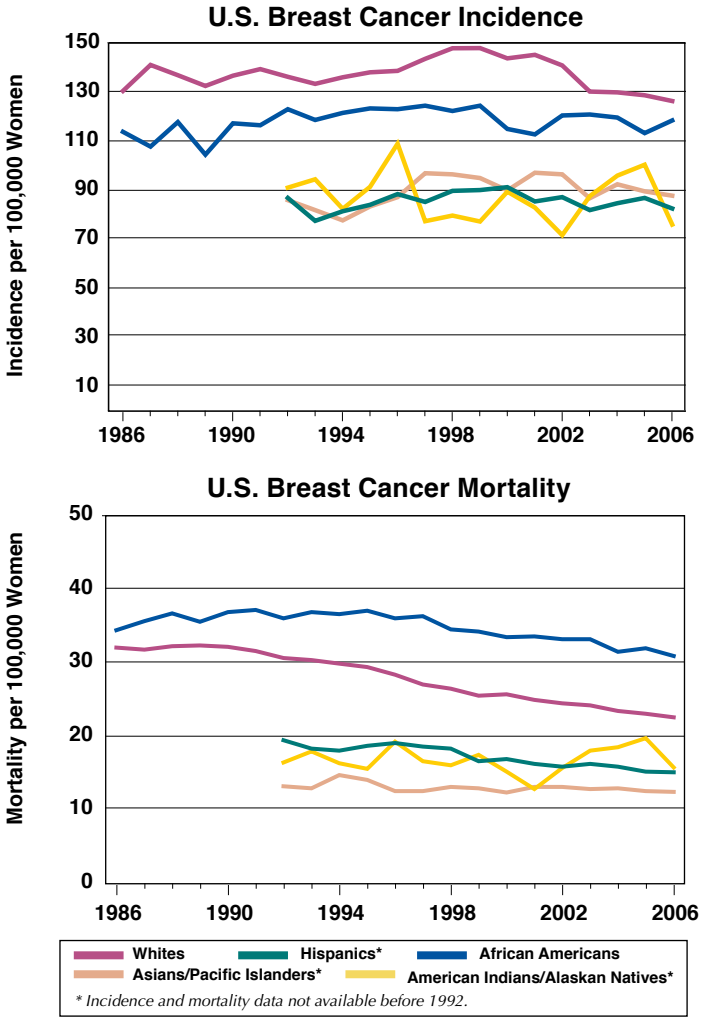
In the United States, breast cancer is the most common non-skin cancer and the second leading cause of cancer-related death in women. Each year, a small number of men are also diagnosed with or die from breast cancer. Although the breast cancer diagnosis rate increased in the 1990s, it has decreased since 2000 and the overall breast cancer death rate has dropped steadily.

The incidence of breast cancer is highest in whites, but African Americans have higher mortality rates than any other racial or ethnic group in the United States. The gap in mortality between African Americans and whites is wider now than it was in the early 1990s.

It is estimated that approximately $8.1 billion[1] is spent in the United States each year on treatment of breast cancer.

Source for incidence and mortality data: Surveillance, Epidemiology, and End Results (SEER) Program and the National Center for Health Statistics. Additional statistics and charts are available at http://seer.cancer.gov/.

[1]Cancer Trends Progress Report (http://progressreport.cancer.gov), in 2004 dollars, based on methods described in *Medical Care* 2002 Aug;40(8 Suppl):IV-104–17.

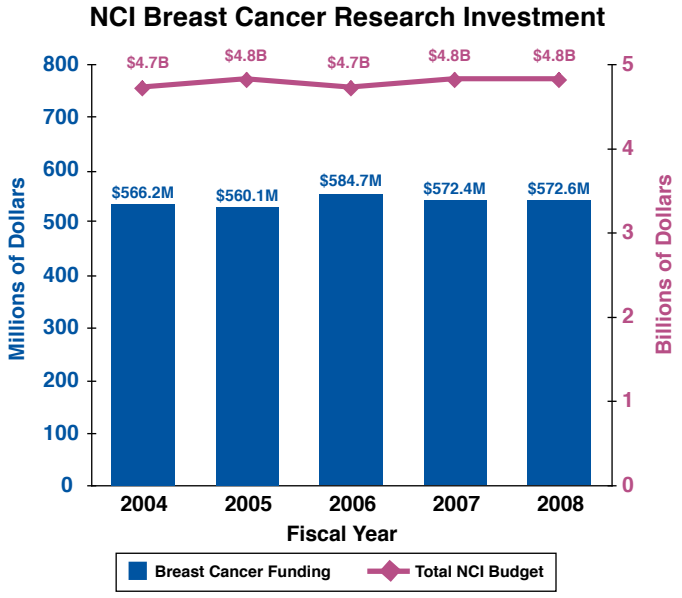


Trends in NCI Funding for Breast Cancer Research

The National Cancer Institute's (NCI) investment[2] in breast cancer research has increased from $566.2 million in fiscal year 2004 to $572.6 million in fiscal year 2008.

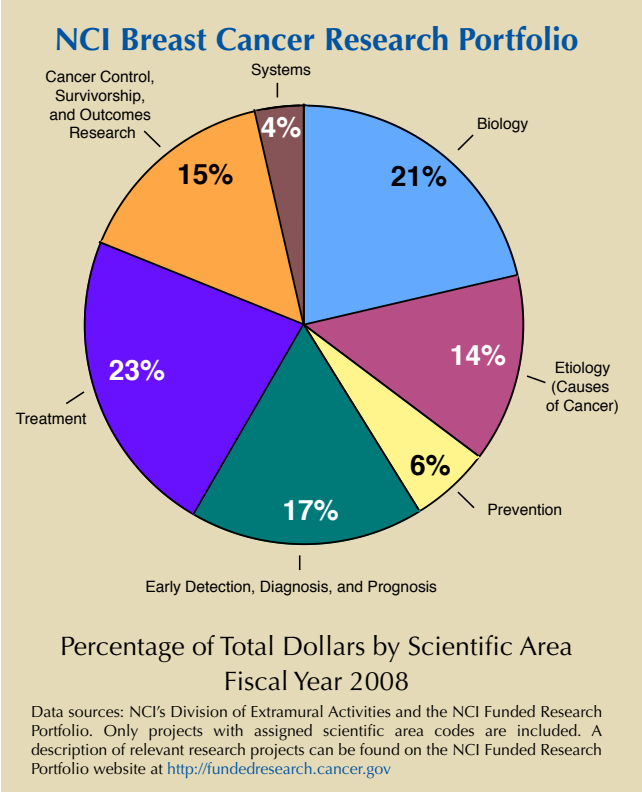
Source: NCI Office of Budget and Finance (http://obf.cancer.gov).

[2]The estimated NCI investment is based on funding associated with a broad range of peer-reviewed scientific activities. For additional information on research planning and budgeting at the National Institutes of Health (NIH), see http://www.nih.gov/about/.



Examples of NCI Activities Relevant to Breast Cancer

- Eleven breast-cancer-specific **Specialized Programs of Research Excellence (SPOREs)** are moving results from the laboratory to the clinical setting. http://spores.nci.nih.gov/current/breast/index.htm
- The **Breast and Gynecologic Malignancies Faculty** facilitates interactions among basic, epidemiological, and clinical researchers to promote a community of investigators who work together for the prevention, diagnosis, and cure of breast cancer. http://ccr.cancer.gov/faculties/faculty.asp?facid=129
- **Cancer Genetic Markers of Susceptibility (CGEMS)** is identifying genetic alterations that make people susceptible to prostate and breast cancer. Scientists are using DNA from five large studies of prostate cancer and five large studies of breast cancer to scan the genome for common genetic differences between patients who have these cancers and those who do not have cancer. http://cgems.cancer.gov/index.asp
- The **Trial Assigning Individualized Options for Treatment (Rx),** or **TAILORx**, is determining whether genes associated with risk of recurrence in women with early-stage breast cancer can be used to identify the most appropriate and effective treatments for these women. http://www.cancer.gov/clinicaltrials/digestpage/TAILORx
- The **Adjuvant Lapatinib and/or Trastuzumab Treatment Optimisation (ALTTO) study** is comparing the effectiveness of two molecular targeted therapies, lapatinib (Tykerb®) and trastuzumab (Herceptin®). The trial is also assessing the effectiveness of a combination of these drugs on early-stage breast cancer that is positive for the HER2 protein. http://www.cancer.gov/ncicancerbulletin/NCI_Cancer_Bulletin_030408/page2



- The **What You Need to Know About™ Breast Cancer** booklet contains important information about breast cancer, including possible causes, screening, symptoms, diagnosis, treatment, and supportive care. Information specialists can also answer questions about cancer at 1-800-4-CANCER. http://www.cancer.gov/cancertopics/wyntk/breast
- The **Breast Cancer Home Page** directs visitors to up-to-date information on breast cancer treatment, prevention, genetics, causes, screening, testing, and other topics. http://www.cancer.gov/breast

Selected Advances in Breast Cancer Research

- Researchers have identified **two genetic variations** that may increase the risk of breast cancer. http://www.cancer.gov/newscenter/pressreleases/CGEMSBreastCancer
- An **insulin-like growth factor-I gene signature pattern identified in mammary epithelial cells** was examined in human breast tumors and found to be associated with poor clinical prognosis. http://www.ncbi.nlm.nih.gov/pubmed/18757322
- Addition of **seven common single-nucleotide polymorphisms associated with breast cancer risk** may modestly improve the accuracy of a model that predicts individual breast cancer risk. http://www.ncbi.nlm.nih.gov/pubmed/18612136
- A **new mouse embryonic stem cell-based assay** was developed to test for functional significance of *BRCA2* gene mutations associated with breast cancer susceptibility. http://www.ncbi.nlm.nih.gov/pubmed/18607349